

WHAT IS CLAIMED IS:

Sub B1
1. An electrooptical device comprising a pixel matrix circuit constituted by a plurality of pixels each including at least one TFT and a pixel electrode connected to the TFT, wherein:

5 a contact portion for electrical connection to the TFT is disposed at a part of the pixel electrode; and

an insulating layer is embedded in a recess portion provided at the contact portion.

10 2. An electrooptical device comprising a pixel matrix circuit constituted by a plurality of pixels each including at least one TFT and a pixel electrode connected to the TFT, wherein:

the pixel electrode includes a lamination structure of a first metal layer and a second metal layer; and

15 an insulating layer is put between the first metal layer and the second metal layer at a contact portion where the first metal layer is connected with the TFT.

20 3. An electrooptical device comprising a pixel matrix circuit constituted by a plurality of pixels each including at least one TFT and a pixel electrode connected to the TFT, wherein:

the pixel electrode includes a lamination structure of a first metal layer and a second metal layer;

25 an insulating film is embedded in a recess portion disposed on the first metal layer; and

the second metal layer is disposed so as to cover the first metal layer and the insulating film.

Subca
30 4. An electrooptical device according to claim 2 or 3, wherein at least one of the first and the second metal layer has a single layer

structure or a lamination structure.

5. An electrooptical device according to claim 2 ~~or 3~~, wherein the first metal layer is made of a material selected from the group consisting of Ti, Cr, Ta, W, Mo, Nb and Si, and the second metal layer is made of a material selected from the group consisting of Al, Cu, Ag, and metal films mainly containing those elements.

6. An electrooptical device according to ^{claim 1} ~~any one of claim 1 to 3~~ wherein the insulating layer is an organic resin film of at least one material selected from the group consisting of polyimide, polyamide, polyimide amide, and acryl.

7. An electrooptical device according to ^{claim 1} ~~any one of claims 1 to 3~~ wherein the insulating layer is a light absorbing layer.

8. An electronic equipment comprising an electrooptical device according to ^{claim 1} ~~any one of claims 1 to 3~~ as a display.

9. A method of manufacturing an electrooptical device, comprising the steps of:

forming an opening portion in a first insulating layer;

forming a first metal layer so as to cover the first insulating layer and the opening portion;

forming a second insulating layer on the first metal layer;

etching or polishing the second insulating layer to make a state where the second insulating layer is embedded in only a recess portion formed on the first metal layer; and

forming a second metal layer so as to cover the first metal layer and the embedded second insulating layer.

10. A method of manufacturing an electrooptical device according to claim 9, wherein the first and/or second metal layer is formed of a single layer or a lamination.

5 11. A method of manufacturing an electrooptical device according to claim 9, wherein the first metal layer is formed of a material selected from the group consisting of Ti, Cr, Ta, W, Mo, Nb, and Si, and the second metal layer is formed of a material selected from the group consisting of Al, Cu, Ag, and metal films mainly containing those elements.

10 12. A method of manufacturing an electrooptical device, comprising the steps of:

forming an opening portion in a first insulating layer;

forming a pixel electrode so as to cover the first insulating layer and the opening portion;

forming a second insulating layer on the pixel electrode; and

etching or polishing the second insulating layer to make a state where the second insulating layer is embedded in only a recess portion formed on the pixel electrode.

15 13. A method of manufacturing an electrooptical device according to claim 12, wherein the pixel electrode is formed of a single layer or a lamination of a material selected from the group consisting of Al, Cu, Ag, and metal films mainly containing those elements.

20 14. A method of manufacturing an electrooptical device according to claim 9 ~~or 12~~, wherein the second insulating layer is an organic resin film of at least one material selected from the group consisting of polyimide, polyamide, polyimide amide, and acryl.

15. A method of manufacturing an electrooptical device according

to claim 9 ~~or 12~~, the second insulating layer is a light absorbing layer.

Sub B2
16. An electronic device having at least one active matrix type liquid crystal panel, said liquid crystal panel comprising:

a substrate having an insulating surface;

5 an active matrix circuit formed over said substrate comprising a plurality of pixel electrodes, a plurality of switching elements for switching said pixel electrodes, respectively, an interlayer insulating film formed over said plurality of switching elements wherein each of said plurality of pixel electrodes is formed on said interlayer insulating film and electrically connected to the respective pixel electrode through a contact hole of said interlayer insulating film; and

10 a driving circuit comprising a plurality of thin film transistors formed over said substrate for driving said active matrix circuit,

15 wherein a depression formed over said contact hole is filled with an insulating material.

20 17. An electronic device according to claim 16 wherein each of said pixel electrodes comprises a first conductive layer which is formed on the interlayer insulating film and extends into said contact hole and electrically contacts the corresponding switching element and a second conductive layer which is formed on the first conductive layer, and a top surface of said insulating material is flush with a top surface of said first conductive layer.

18. An electronic device according to claim 16 wherein each of said switching elements comprises a multi-gate transistor in which a 25 plurality of thin film transistors are connected to the corresponding pixel electrode in series.

19. An electronic device according to claim 16 wherein each of

said switching elements comprises at least one thin film transistor having an LDD structure.

20. An electronic device according to claim 17 wherein said first conductive layer comprises a material selected from the group consisting
5 of Ti, Cr, Ta, W, Mo, Nb and Si.

21. An electronic device according to claim 17 wherein said second conductive layer comprises a material selected from the group consisting of Al, Cu and Ag.

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22. An electronic device according to claim 16 wherein said
10 interlayer insulating film comprises an organic resin.

23. An electronic device according to claim 16 wherein said device is a portable telephone.

24. An electronic device according to claim 16 wherein said device is a video camera.

15 25. An electronic device according to claim 16 wherein said device is a mobile computer.

26. An electronic device according to claim 16 wherein said device is a rear projector.

20 27. An electronic device according to claim 16 wherein said device is a front projector.

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